

Customer No.: 31561  
Docket No.: 12530-US-PA  
Application No.: 10/709,006

### **REMARKS**

#### **Present Status of the Application**

The Office Action rejected claims 1-2 and 7-8 under 35 U.S.C. 102(b) as being anticipated by Chau US 5,596,369.

The Office Action rejected claims 3, 4, 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Chau in view of Richter et al US 5,995,491.

The Office Action rejected claims 5 and 11 under 35 U.S.C. 103(a) as being unpatentable over Chau in view of Richter in further view of Kramer et al. US 6,658,027.

The Office Action rejected claims 6 and 12 under 35 U.S.C. 103(a) as being unpatentable over Chau in view of Lavalley et al. US 5,267,242.

Upon entry of the amendments in this response, claims 1-12 remain pending in the present application. These amendments are specifically described hereinafter. It is believed that the foregoing amendments add no new matter to the present application.

#### **Response To Claim Rejections Under 35 U.S.C. Section 102**

*Claims 1-2 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Chau US 5,596,369 ("Chau", hereinafter). Claims 3, 4, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau in view of Richter et al US 5,995,491 ("Richter", hereinafter). Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau in view of Richter in further view of Kramer et al. US 6,658,027. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau in view of Lavalley et al. US 5,267,242.*

Independent claims 1 and 7, as amended, are allowable for at least the reason that

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Chau, alone or further in view of Richter, Kramer, or Lavallee, does not disclose, teach, or suggest the features that are highlighted in claims 1 and 7 as followed.

Claim 1, as amended, recites: “[an] image decompressing circuit, comprising:

a variable length decoding unit, a variable length decoding unit, for receiving a compressed image picture and executing a debug analysis comprising syntax and semantics pre-check on entire the compressed image picture after the entire compressed image picture having been received, wherein when a result of the debug analysis indicates that the entire compressed image picture is suitable for a subsequent decoding operation, executing a decoding process in pipeline on the compressed image picture; and

an image picture recovery unit, electrically coupled to the variable length decoding unit, for performing an inverse quantization, an inverse discrete cosine transformation and a motion compensation with a pipeline process after the compressed image picture has been decoded with the pipeline process, so as to recover the compressed image picture.”

Claim 7, as amended, recites in part: “A method of decompressing images, comprising:

executing a debug analysis comprising syntax and semantics pre-check on the entire compressed image picture after the entire compressed image picture having been received, wherein when a result of the debug analysis indicates that the compressed image picture is suitable for a subsequent decoding operation, executing a decoding operation on the compressed image picture with a

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pipeline process" (*Emphasis Added*)

Chau discloses a basic decoding system 10 for decoding an MPEG video data bitstream. The bitstream is de-multiplexed, Variable Length Decoded (VLD) by a VLD decoder 12, inverse quantized by an inverse quantizer 14, and any DCT coded blocks are subjected to Inverse Discrete Cosine Transformation (IDCT) decoding by an IDCT decoder 16 (See column 2, lines 56-61).

As stated in "Response to Applicants Amendments/Arguments" on Page 2 of the Office Action, the passage "slices are important in the handling of errors. If the bitstream contains an error, the decoder can skip to the start of the next slice" in Chau (See column 2, lines 4-6) is asserted by the Office Action to constitute a debug analysis as claimed. In response thereto, the Applicants have amended claim 1 to further recite "a variable length decoding unit, a variable length decoding unit, for receiving a compressed image picture and executing a debug analysis comprising syntax and semantics pre-check on entire the compressed image picture after the entire compressed image picture having been received, wherein when a result of the debug analysis indicates that the entire compressed image picture is suitable for a subsequent decoding operation, executing a decoding process in pipeline on the compressed image picture" which is not implicitly or explicitly disclosed in Chau, or other cited references, alone or combined.

As disclosed in Paragraph [0027] of the originally-filed specification, which is stated as followed:

"In the present invention, the variable length decoding unit 210 in the diagram performs syntax and semantics pre-check after the

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compressed image picture has been received. In other words, the debug analysis is performed on the entire compressed image picture first, and when the result of the debug analysis indicates that there is no error data, it is determined that the compressed image picture is suitable for the subsequent decoding operation. Then, the decoding process is performed in pipeline on the compressed image picture, and the decoded data is sent to the image picture recovery unit 220 for performing the further INVQ, IDCT, and MC processes in pipeline.”

In the claimed invention, the debug analysis is an operation of pre-checking syntax and semantics on entire the compressed image picture after the entire compressed image picture having been received. Taking the standard “ISO/IEC 13818-2: 1995 (E)” as an example for explanation. The “ISO/IEC 13818-2: 1995 (E)” standard is the INTERNATIONAL STANDARD 13818-2 (RECOMMENDATION ITU-T H.262) related to INFORMATION TECHNOLOGY GENERIC CODING OF MOVING PICTURES AND ASSOCIATED AUDIO INFORMATION: VIDEO, as attached. The debug analysis for pre-checking syntax and semantics on entire the compressed image picture as claimed relates to checking the syntax or semantics of the entire the compressed image picture including the picture header, slices, macroblocks, or blocks before the normal decoding process. If the result of the debug analysis indicates that there is no error data, it is determined that the compressed image picture is suitable for the subsequent decoding operation (para. [0027]). For example, taking the picture header according to the MPEG Video specification (13818-2) Section 6.2.3 for example, the field

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of "picture\_coding\_type" is constituted with eight types from 3'b000 to 3'b111. According to the MPEP Video specification, the "picture\_coding\_type" is not permitted to be one of the 3'b000, 3'b101, 3'b110 or 3'b111. If the operation of the pre-checking syntax and semantics is performed on the entire compressed image picture including the picture header and finds that the "picture\_coding\_type" is the type which is not permitted, it indicates a serious problem and the image picture is not suitable for a subsequent decoding operation.

By performing the pre-checking syntax and semantics operation on the other fields of the picture header, or on the fields of the slices, macroblocks, or blocks, the results can be obtained that the entire compressed image picture is suitable for a subsequent decoding operation. executing a decoding process in pipeline on the compressed image picture.

Thus, Chau fails to teach or suggest "a variable length decoding unit, a variable length decoding unit, for receiving a compressed image picture and executing a debug analysis comprising syntax and semantics pre-check on entire the compressed image picture after the entire compressed image picture having been received, wherein when a result of the debug analysis indicates that the entire compressed image picture is suitable for a subsequent decoding operation, executing a decoding process in pipeline on the compressed image picture" as recited in claim 1, or "executing a debug analysis comprising syntax and semantics pre-check on the entire compressed image picture after the entire compressed image picture having been received, wherein when a result of the debug analysis indicates that the compressed image picture is suitable for a subsequent decoding operation, executing a decoding

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operation on the compressed image picture with a pipeline process" as recited in claim 7.

For at least the foregoing reasons, Applicants respectfully submit that Chan do not teach each and every element in claims 1 and 7. Independent claims 1 and 7 are patently defined over the prior art references of record, and should be allowed.

If independent claim 1 is allowable over the prior arts of record, then its dependent claims 2-6 and 8-12 are allowable as a matter of law.

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**CONCLUSION**

For at least the foregoing reasons, it is believed that the pending claims 1-12 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Date :

*Feb. 19, 2008*

Respectfully submitted,

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ISO/IEC 13818-2: 1995 (E)

**INTERNATIONAL STANDARD 13818-2****RECOMMENDATION ITU-T H.262****INFORMATION TECHNOLOGY -  
GENERIC CODING OF MOVING PICTURES AND  
ASSOCIATED AUDIO INFORMATION: VIDEO****1 Scope**

This Recommendation | International Standard specifies the coded representation of picture information for digital storage media and digital video communication and specifies the decoding process. The representation supports constant bitrate transmission, variable bitrate transmission, random access, channel hopping, scalable decoding, bitstream editing, as well as special functions such as fast forward playback, fast reverse playback, slow motion, pause and still pictures. This Recommendation | International Standard is forward compatible with ISO/IEC 11172-2 and upward or downward compatible with EDTV, HDTV, SDTV formats.

This Recommendation | International Standard is primarily applicable to digital storage media, video broadcast and communication. The storage media may be directly connected to the decoder, or via communications means such as buses, LANs, or telecommunications links.

**2 Normative references**

The following ITU-T Recommendations and International Standards contain provisions which through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau maintains a list of currently valid ITU-T Recommendations.

Recommendation ITU-T H.262 (1995 E)

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## ISO/IEC 13818-2: 1995 (G)

- Recommendations and reports of the CCIR, 1990 XVIIIth Plenary Assembly, Dusseldorf, 1990 Volume XI - Part 1 Broadcasting Service (Television) Recommendation ITU-R BT.601-3 "Encoding parameters of digital television for studios".
- CCIR Volume X and XI Part 3 Recommendation ITU-R BR.648 "Recording of audio signals".
- CCIR Volume X and XI Part 3 Report ITU-R 955-2 "Satellite sound broadcasting to vehicular, portable and fixed receivers in the range 500 - 3000Mhz".
- ISO/IEC 11172-1 1993, *Information technology — Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s — Part 1: Systems*.
- ISO/IEC 11172-2 1993, *Information technology — Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s — Part 2: Video*.
- ISO/IEC 11172-3 1993, *Information technology — Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s — Part 3: Audio*.
- IEEE Standard Specifications for the Implementations of 8 by 8 Inverse Discrete Cosine Transform, IEEE Std 1180-1990, December 6, 1990.
- IEC Publication 908:1987, *CD Digital Audio System*.
- IEC Publication 461:1986, *Time and control code for video tape recorder*.
- ITU-T Recommendation H.261 (Formerly CCITT Recommendation H.261) Codes for audiovisual services at up to 64 kbit/s Geneva, 1990.
- ISO/IEC 10918-1:1994 | Recommendation ITU-T T.81 (JPEG) *Information Technology — Digital compression and coding of continuous-tone still images: Requirements and guidelines*.